

**A CENTIGRADE THERMOMETER SCALE PREFERRED.**

We take from the report<sup>1</sup> of the annual meeting of the National Academy of Sciences, held in Washington, April 17 to 19, 1916, the following paragraphs of interest to Weather Bureau men.

"A report of the committee [of the National Academy of Sciences] on bill H. R. 528, discontinuing the use of the Fahrenheit thermometer scale in Government publications, was adopted as follows:

Your committee for the consideration of bill H. R. 528, consisting of Messrs. C. G. Abbot, S. W. Stratton, and C. F. Marvin, unanimously reports the following resolution, and moves its adoption:

The National Academy of Sciences shares the desire of scientific men in general for international and world-wide uniformity in units of measurement of all kinds, and with this object in view it favors the introduction of the centigrade scale of temperature, and units of the metric system generally, as standards in the publications of the United States Government.

It must be recognized that considerable initial expense must be incurred by the United States Weather Bureau in changing its apparatus to conform to the proposed act. Furthermore, on account of the more open scale of the centigrade system that bureau will be subject to a continued increased cost of publication, owing to the necessity of printing the first decimal place in order to maintain the present accuracy. The use of negative temperatures and minus signs entails greater liability to errors, and more clerical labor would be required in checking the accuracy of the reports of cooperative observers of the Weather Bureau and in computing monthly and other mean temperatures.

Notwithstanding the foregoing, the academy is in favor of legislation to make the centigrade scale of temperatures the standard in publications of the United States Government, and funds should be made available by Congress to accomplish the desired result.

The academy favors bill H. R. 528, "to discontinue the use of the Fahrenheit thermometer scale in Government publications," but recommends that it be amended by the addition of the following:

"Sec. 4. When in the publication of tables containing several meteorological and climatic elements the use of data in centigrade temperatures leads to manifest incongruities, the Chief of the Weather Bureau is directed to publish related data in such units as are necessary to make the tables homogeneous and to secure international uniformity as far as practicable.

"Sec. 5. Nothing in this act shall prevent the use of the absolute centigrade scale of temperature in publications of the Government."

**MARCELLUS HARTLEY MEMORIAL MEDAL, 1916.**

[On April 18, 1916, the National Academy of Sciences, meeting at Washington, D. C., awarded a Marcellus Hartley medal "for eminence in the application of science to the public welfare" to Prof. Cleveland Abbe in recognition of his services in connection with the foundation and organization of the United States Weather Bureau. The nominating speech was made by Prof. William Morris Davis, and the acceptance was by Prof. Charles Frederick Marvin for Prof. Abbe, who was absent on account of ill health.

The award of the Hartley medal to Cleveland Abbe is the first time this medal has gone to one of the members of the National Academy of Sciences.

By the courtesy of the National Academy of Sciences it is possible to publish here the remarks made on the occasion, remarks of historic value as indicating the character of the medallist and also as recording some little-known details in the history of the Weather Bureau.—C. A. jr.]

**REMARKS BY WILLIAM MORRIS DAVIS.**

Among the gratifying duties of the National Academy of Sciences is that of awarding certain medals in recognition of notable achievement. One of our medals, founded by a daughter in memory of her father, Marcellus Hartley, of New York, is to be given for "eminence in the application of science to the public welfare." I am glad, Mr. President, that this medal is awarded for *eminence* in the application of science, for if it were to be awarded for *prominence*, it never could have been given to a man so modest, so retiring, so diffident, as

Cleveland Abbe. We all have had a warm pleasure in voting to approve the discernment of our committee in nominating this gentle man, who has so long labored quietly, without ostentation, never intruding himself upon public notice for the display of his learning, to be the recipient of a medal for real eminence in the work that he has done for his country's good.

It is singular and regrettable that, although we have a large and varied assortment of weather, sometimes, indeed, an oversupply of it, spread across the continent from ocean to ocean, we have had but few weather men—meteorologists—of high standing. The devotees of the subject have too often perpetuated an unscientific, astrological habit of mind, elsewhere extinct. Only about six of them have attained academic rank. Redfield and Espy were contemporaries and competitors in the first half of the nineteenth century—Redfield, a careful observer and a cautious theorizer, a true inductive philosopher, to whom the world owes the first demonstration that West Indian hurricanes are gigantic whirlwinds; Espy, an equally good observer but a bolder theorizer, whose keen deductions regarding atmospheric convection and the associated adiabatic changes of temperature in air currents having a vertical component excited less admiration in our own than unlearned country than in more learned countries abroad. The work of these eminent Americans was done before the formation of the National Academy, but Redfield was a member of the American Academy of Arts and Sciences in Boston, and Espy of the American Philosophical Society in Philadelphia.

Long before their time lived the most famous of all American meteorologists, Benjamin Franklin, who not only established the identity of lightning and electricity about the middle of the eighteenth century, but proved at a somewhat earlier date that our northeast storms come from the southwest, and thus laid the basis of modern weather predictions. His name is still worthily celebrated every year by the famous academic society that he founded.

Redfield and Espy were followed in the second half of their century by Loomis and Ferrel, in whom the contrasts of the two earlier masters were repeated. They were both members of this Academy. Like Redfield, Loomis was faithfully inductive; it was he who first analyzed and generalized the great body of observations that were recorded on the early weather maps of the Signal Service. He thus established a large number of values regarding the behavior of winds, the changes of temperature, and the fall of rain or snow in the traveling areas of high and low pressure that sweep eastward through the Temperate Zone; and in this fundamental work he has not, I regret to say, as yet been followed by a worthy successor. Like Espy, Ferrel was inventively deductive; he directed his extraordinary native powers of mathematical analysis to such problems as the general circulation of the atmosphere and the vortical currents of cyclones and tornadoes, and made an enduring mark upon them. The autobiography of this self-taught farmer's boy is a touching story of emerging genius.

During an intermediate period Maury systematized the reduction of meteorological observations at sea; Joseph Henry did much to encourage systematic meteorological observation on land; and Coffin, utilizing all available records from lands and seas, compiled his great work on the Winds of the Globe; but the impress of these three men on the scientific interpretation of atmospheric phenomena was not so profound as that of Redfield and Espy before them or of Loomis and Ferrel after them.

<sup>1</sup> Proc., Nat'l Acad. Sci., May, 1916, v. 2, No. 5, p. 304.